

No.

200400304

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

West Bred, LLC

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 U.S.C. 2131 ET SEQ.)

WHEAT, COMMON

'Mohler'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty-fourth day of November, in the year two thousand and four.

Attest:

*[Signature]*

Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*[Signature]*

Secretary

REPRODUCE LOCALLY. Include form number and date on all reproductions

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE  
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER <b>WestBred, LLC</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME <b>BU 6W93-477</b>	3. VARIETY NAME <b>Mohler</b>
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) <b>8111 Timberline Drive Bozeman, MT 59718</b>		5. TELEPHONE (include area code) <b>406-587-1218</b>	FOR OFFICIAL USE ONLY <b>200400304</b>
		6. FAX (include area code) <b>406-586-8742</b>	
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) <b>Limited Liability Co.</b>	8. IF INCORPORATED, GIVE STATE OF INCORPORATION <b>Arizona</b>	9. DATE OF INCORPORATION <b>Aug. 4. 2003</b>	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) <b>Dr. Dale R. Clark WestBred, LLC 8111 Timberline Drive Bozeman, MT 59718</b>			FILING DATE <b>SEPTEMBER 10, 2004</b>
			FILING AND EXAMINATION FEES: <b>\$3652.00</b> DATE <b>9-10-2004</b> CERTIFICATION FEE: <b>\$432.00</b> DATE <b>9/29/04</b>
11. TELEPHONE (include area code) <b>406-587-1218</b>	12. FAX (include area code) <b>406-586-8247</b>	13. E-MAIL <b>dclark@westbred.com</b>	
14. CROP KIND (Common Name) <b>wheat</b>	16. FAMILY NAME (Botanical) <b>Poaceae</b>	18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
15. GENUS AND SPECIES NAME OF CROP <b>Triticum aestivum</b>	17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$3,652), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)		20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act) <input type="checkbox"/> YES (if "yes", answer items 21 and 22 below) <input checked="" type="checkbox"/> NO (if "no", go to item 23) 21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED 22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)	
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <b>Sept 20, 2003</b> IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)		24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	
25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF OWNER <b>Dale R. Clark for WestBred, LLC</b>		SIGNATURE OF OWNER <b>DR Biggers staff</b>	
NAME (Please print or type) <b>Dale R. Clark</b>		NAME (Please print or type) <b>Dan R. Biggers staff</b>	
CAPACITY OR TITLE <b>Barley &amp; Wheat Breeder</b>	DATE <b>Sept 8, 2004</b>	CAPACITY OR TITLE <b>Vice President</b>	DATE <b>9-8-2004</b>

(See reverse for instructions and information collection burden statement)

**“Mohler”**  
Soft White Winter Wheat

**16.a. Exhibit A. Origin and Breeding History**

“Mohler” (Exp. # BU 6W93-477) is a soft white winter wheat that originated from the cross of “Stephens x Madsen”, made by WestBred, LLC near Bozeman, MT in 1989. The F1 plants were planted near Phoenix, AZ in Nov. 1989, and the F2 seed harvested in May 1990. F2 seed was planted in Oct. 1990 near Bozeman, MT and Moses Lake, WA. Both nurseries had severe winter kill and were abandoned. Remnant F2 seed was again planted near Bozeman, MT and Burley, ID in the fall of 1991. Individual F2 plants were harvested and the F3 seed planted as individual 5' x 7' plots in the fall of 1992 near Burley, ID. The F3 plots were observed for the resistance to leaf rust, stripe rust and for overall agronomic appearance. The plots were harvested individually, weighed and the grain tested for cookie/cracker/cake quality by measuring test weight, % protein, SDS sedimentation and alkaline water retention capacity. Seed from one such plot was selected to be advanced and was given the experimental number “BU 6W93-477”. Yield trials, along with quality analysis for soft white wheat, were conducted on the F4 thru F12 generations in WestBred, LLC's Pacific Northwest winter wheat trials. F9-F13 generation seed was tested in Washington, Idaho, and Oregon public trial from 1999 to present. Table 1 provides agronomic performance from several locations. BU 6W93-477 was tested for quality by the Pacific Northwest Wheat Quality Council in 2001 and found to be acceptable for the soft white wheat market class (Table 2 provides quality data from the USDA/ARS Western Wheat Quality Lab). Individual heads were harvested from the F4 plots and planted as head rows near Bozeman, MT in the fall of 1994. Five head rows were harvested and planted individually in the fall of 1995 near Bozeman, MT. These plots were harvested in Aug of 1996 and planted in October, 1996 near Burley, ID in larger increase plots that were harvested in August, 1997. These lines were planted again near Burley, ID in the fall of 1997. At harvest in August of 1998, one of the plots (selection “d”) was selected as the best line and heads were again selected before the plot was bulk harvested. These heads were planted as head-rows near Burley, ID in the fall of 1998 and uniform head rows were harvested as a bulk in August, 1999. The bulk head rowed seed was used to plant a small purification in October, 1999 near Burley, ID. This seed was harvested in August, 2000 and used to plant approximately one acre near Burley, ID in the fall of 2000. This seed was harvested in August, 2001 and designated ‘Breeder’s’ seed. The Breeder’s seed was planted on approximately 40 acres near Quincy, WA in



**"Mohler"****Soft White Winter Wheat**

October 2001. Production from this field was harvested in August 2002 as 'Foundation' and 'Registered' seed. At that time, the name "Mohler" (named after a small town in Washington) was chosen for the variety. 'Registered' seed was planted in the fall of 2002 and seed from these fields were harvested in August, 2003 as 'Certified' seed. The first unencumbered sale of "Mohler" occurred September 20, 2003.

A variant that is similar to "Mohler", but is 4 to 8 inches taller, occurs at a frequency of up to .08% (8 per 10,000 plants). Also, a red seed variant may occur at a frequency of up to 6/10,000 seed. Otherwise, "Mohler" is a stable and uniform variety in appearance and performance across several generations (F4 to F13) and growing conditions.

**16.b. Exhibit B. Statement of Distinctness**

Mohler is most similar to the variety Madsen. However, Mohler is 2 days earlier heading than Madsen (*t* test with 56 paired comparisons  $P = 1.38 \times 10^{-18}$  that they are similar) Table 3, and Mohler is approximately 2 inches taller than Madsen (*t* test with 113 paired comparisons  $P = 7.17 \times 10^{-25}$  that they are similar) Table 4.

The above comparison, along with the complete Objective Description (Exhibit C) shows Mohler to be a novel variety of soft white winter wheat.

Table 1. Agronomic Characteristics of Mohler compared to check varieties in Washington State Univ. Trials from 2002 to 2004 (58 locations).

Mean values of 2002(19), 2003 (20) & 2004 (19) trials.						
<u>Variety</u>	<u>Yield Bu/Ac</u>	<u>Test Wt Lbs/Bu</u>	<u>% Protein</u>	<u>Plant Ht. Inches</u>	<u>Heading Date</u>	<u>% Lodging</u>
<b>Mohler</b>	<b>102</b>	<b>59.4</b>	<b>10.0</b>	<b>37</b>	<b>6/2/03</b>	<b>17</b>
Cashup	96	59.8	9.9	34	6/4/03	2
Eltan	99	59.3	9.8	37	6/6/03	24
Finch	102	60.4	9.8	36	6/6/03	5
Hill 81	99	59.8	10.2	39	6/5/03	2
Lambert	97	59.2	10.2	38	6/1/03	5
Madsen	98	59.3	10.4	35	6/5/03	0
Rod	106	58.2	9.7	35	6/5/03	17
Stephens	97	59.0	10.5	35	6/1/03	5
Tubbs	106	58.5	10.0	38	6/3/03	1



**“Mohler”**  
Soft White Winter Wheat

Table 2. Quality analysis (*t*-scores) of Mohler compared to currently grown varieties of soft white winter in Washington State University Trials. Analysis performed by USDA/ARS Western Wheat Quality Lab in Pullman, WA. (2000 - 2002 samples)

<u><i>t</i> values</u>				
<u>Variety</u>	<u>Grain</u>	<u>Milling</u>	<u>End Product</u>	<u>score</u>
Rod	5.14	1.57	1.44	1.44
Cashup	1.37	-1.13	3.10	1.24
Hill 81	0.15	3.19	-0.15	1.22
Eltan	1.55	1.52	0.53	1.03
Stephens	0.00	0.00	0.00	0.00
<b>Mohler</b>	<b>1.94</b>	<b>0.68</b>	<b>-1.18</b>	<b>-0.12</b>
Lambert	-0.09	2.71	-2.56	-0.21
Tubbs	1.77	-1.21	-3.05	-1.83
Madsen	-2.03	-0.13	-4.33	-2.42
Weatherford	-1.33	-1.93	-3.07	-2.44

Note: Student's *t* is calculated for each variety compared to the check variety 'Stephens'. Positive values of *t* indicate the test variety has a value greater than the check and negative values indicate that the test variety value is less than the check.

Mohler was compared with Stephens in 14 location/years of samples.



**“Mohler”**  
Soft White Winter Wheat

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Table 3. Heading date comparisons of Mohler and Madsen in public ( Washington State Univ.; Oregon State Univ.; Univ. of Idaho) and private trials from 2000 to 2004.

Heading Date (from Jan 1)						
<u>Year</u>	<u>Originator</u>	<u>Location</u>	<u>Mohler</u>	<u>Madsen</u>		
2000	WSU	Lind	142	143		
		Dusty	145	146		
		Lamont	147	147		
		Ritzville	149	151		
2001	WSU	Dayton	147	150		
2002	WSU	Pullman	167	171		
		St. Johns	163	165		
	U of Idaho	Jerome	158	159		
		Rupert	159	162		
		Aberdeen	164	166		
		Ririe	170	172		
		2003	WSU	Lind	143	143
				Harrington	157	160
St. Andrews	150			153		
Ritzville	151			154		
Bickleton	155			157		
Anatone	155			158		
Dusty	149			151		
Colton	163			164		
Mayview	155			158		
Almira	155			160		
Creston	154			160		
Reardan	160			163		
Lamont	153			154		
Fairfield	164			167		
Farmington	162			163		
Walla Walla	150			153		
Pullman	160	161				
Dayton	150	153				
St. Johns	151	154				
Moses Lake	147	150				
2004	WSU	Lind	151	153		
		Harrington	155	159		
		St. Andrews	143	145		
		Ritzville	157	159		
		Anatone	147	148		
		Dusty	169	171		
		Colton	162	163		
		Mayview	166	167		



**"Mohler"**

## Soft White Winter Wheat

	Almira	166	168
	Creston	167	169
	Reardan	147	149
	Lamont	169	171
	Fairfield	161	163
	Farmington	140	142
	Walla Walla	170	171
	Pullman	142	144
	Dayton	148	150
	St. Johns	142	144
	Moses Lake	162	163
OSU	Corvallis	134	135
	Pendleton	145	148
	Madras	144	150
U of Idaho	Rupert	161	163
	Kimberly	145	146
	Aberdeen	164	169
	mean	154.5	156.8

t Test w 56  
df

P= 1.38E-18  
P=  $1.38 \times 10^{-18}$

Therefore they are different

Table 4. Plant height comparisons of Mohler and Madsen in public (Washington State Univ., Oregon State Univ., Univ. of Idaho) and private trials from 2000 to 2004.

<u>Year</u>	<u>Originator</u>	<u>Location</u>	<u>Mohler</u>	<u>Madsen</u>
2000	WestBred	Burley, ID	38	35
		Blackfoot, ID	39	35
		Moses Lake, WA	40	39
		Pullman, WA	44	38
		Steptoe, WA	45	43
		Walla Walla, WA	34	30
	WSU	Anatone	35	33
		Bickleton	34	34
		Lind	33	32
		Dusty	37	32
		Ritzville	39	38



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## Soft White Winter Wheat

		Lamont	38	36
		Fairfield	34	35
		Reardan	39	39
		Farmington	41	39
		Creston	39	36
		Mayview	37	36
		Pullman	38	37
		St. John	43	43
		Dayton	44	44
2001	WSU	Moses Lake	39	35
		Ritzville	25	25
		Anatone	24	22
		St. Andrews	34	30
		Bickleton	29	27
		Almira	36	35
		Lamont	31	31
		Walla Walla	35	33
		Fairfield	35	34
		Dusty	33	31
		Dayton	32	31
		Creston	35	32
		Reardon	35	34
		St. Johns	38	36
		Farmington	40	38
		Moses Lake	37	35
		Pullman	41	38
		Mayview	37	36
2002	WSU	Bickleton	29	28
		St. Andrews	30	30
		Harrington	30	29
		Anatone	30	29
		Lamont	27	27
		Fairfield	32	32
		Dusty	36	32
		Almira	39	39
		Creston	32	31
		Mayview	35	34
		Farmington	38	35
		Dayton	38	36
		Reardan	34	32
		Walla Walla	37	37
		Pullman	34	32
		St. Johns	39	38
	U of Idaho	Jerome	33	32
		Rupert	34	33
		Aberdeen	38	38
		Ririe	25	23
2003	WestBred	Blackfoot, ID	38	37
		Burley, ID	40	38
		Moses Lake, WA	39	36





**"Mohler"**

## Soft White Winter Wheat

WSU	Pullman, WA	35	33
	Steptoe, WA	41	40
	Walla Walla, WA	41	40
	Lind	28	27
	Harrington	35	34
	St. Andrews	33	33
	Ritzville	31	30
	Bickleton	34	34
	Anatone	33	30
	Dusty	39	36
	Colton	35	32
	Mayview	38	33
	Almira	40	40
	Creston	39	37
	Reardan	36	34
	Lamont	39	37
	Fairfield	39	37
	Farmington	44	43
	Walla Walla	41	38
	Pullman	35	32
	Dayton	39	37
	St. Johns	44	43
2004 WSU	Moses Lake	38	36
	Lind	33	32
	Harrington	35	33
	St. Andrews	33	32
	Ritzville	33	33
	Anatone	36	33
	Dusty	42	38
	Colton	37	36
	Mayview	39	38
	Almira	37	37
	Creston	35	34
	Reardan	35	32
	Lamont	36	37
	Fairfield	36	35
	Farmington	42	41
	Walla Walla	40	39
	Pullman	36	35
	Dayton	34	33
	St. Johns	44	44
	Moses Lake	35	32
OSU	Corvallis	49	45
	Moro	29	26
	Condon	38	38
	Lexington	36	33
	Hermiston	41	40
	Pendleton	45	42
	Madras	42	40
	LaGrande	39	37



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**"Mohler"**

## Soft White Winter Wheat

U of Idaho	Rupert	38	35
	Kimberly	38	37
	Aberdeen	<u>37</u>	<u>35</u>
	mean	36.6	34.9

tTest w 113

df 7.17E-25

P=  $7.17 \times 10^{-25}$ 

Therefore they are different



REPRODUCE LOCALLY. Include form number and date on all reproductions.

Form Approved OMB NO 0581-0055

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U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY  
Wheat (*Triticum* spp.)

NAME OF APPLICANT(S) West Bred, LLC	TEMPORARY OR EXPERIMENTAL DESIGNATION Bu 6w93-477	VARIETY NAME Mohler
ADDRESS (Street and No. or RD No., City, State, Zip Code and Country) 8111 Timberline Dr. Bozeman, MT 59718 USA		FOR OFFICIAL USE ONLY PVPO NUMBER 200400304

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g., 0 9 9 or 0 9 ) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: \_\_\_\_\_ Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

- ☒ 1 = Common  
☐ 2 = Durum  
☐ 3 = Club  
☐ 4 = Other (Specify) \_\_\_\_\_

2. VERNALIZATION:

- ☒ 1 = Spring  
☐ 2 = Winter  
☐ 3 = Other (Specify) \_\_\_\_\_

3. COLEOPTILE ANTHOCYANIN:

- ☒ 1 = Absent  
☐ 2 = Present

4. JUVENILE PLANT GROWTH:

- ☒ 1 = Prostrate  
☐ 2 = Semi-Erect  
☐ 3 = Erect

5. PLANT COLOR: (boot stage)

- ☒ 1 = Yellow-Green  
☐ 2 = Green  
☐ 3 = Blue-Green

6. FLAG LEAF: (boot stage)

- ☒ 1 = Erect  
☐ 2 = Recurved  
☒ 1 = Not Twisted  
☐ 2 = Twisted  
☒ 1 = Wax Absent  
☐ 2 = Wax Present

7. EAR EMERGENCE:

- ☒ 1 5 5 Number of Days (Average)  
☒ 0 2 Number of Days Earlier Than \* Madsen  
Same As \*  
☒ 0 2 Number of Days Later Than \* Stephens  
\*Relative to a Commercial Variety Grown in the Same Trial

8. ANTER COLOR:

- ☒ 1 = Yellow  
☐ 2 = Purple

10

## 9. PLANT HEIGHT: (from soil to top of head, excluding awns)

093

cm (Average)

04

cm Taller Than

Madsen

Same As

04

cm Shorter Than

Hill 81

## 10. STEM:

## A. ANTHOCYANIN

1

1 = Absent 2 = Present

## B. WAXY BLOOM

2

1 = Absent 2 = Present

## C. HAIRINESS (last internode of rachis)

2

1 = Absent 2 = Present

## D. INTERNODE

1

1 = Hollow

2 = Semi-Solid

3 = Solid

4

Number of Nodes

## E. PEDUNCLE

1

1 = Erect

2 = Recurved

3 = Semi-Erect

34

cm Length

## F. AURICLE

1

Anthocyanin

1 = Absent

2 = Present

2

Hair:

1 = Absent

2 = Present

## 11. HEAD: (at maturity)

## A. DENSITY

2

1 = Lax

2 = Mid-dense (Laxidense)

3 = Dense

## B. SHAPE

2

1 = Tapering

2 = Strap

3 = Clavate

4 = Other (Specify)

## C. CURVATURE

2

1 = Erect

2 = Inclined

3 = Recurved

## D. AWNEDNESS

4

1 = Awnless

2 = Apically Awnletted

3 = Awnletted

4 = Awned

## 12. GLUMES: (at maturity)

## A. COLOR

2

1 = White

2 = Tan

3 = Other (Specify)

## B. SHOULDER

1

1 = Wanting

2 = Oblique

3 = Rounded

4 = Square

5 = Elevated

6 = Apiculate

7 = Other (Specify)

## C. SHOULDER WIDTH

3

1 = Narrow

2 = Medium

3 = Wide

## D. BEAK

3

1 = Obtuse

2 = Acute

3 = Acuminate

## E. BEAK WIDTH

3

1 = Narrow

2 = Medium

3 = Wide

## F. GLUME LENGTH

3

1 = Short (ca. 7mm)

2 = Medium (ca. 8mm)

3 = Long (ca. 9mm)

## G. WIDTH

3

1 = Narrow (ca. 3mm)

2 = Medium (ca. 3.5mm)

3 = Long (ca. 4mm)

## 13. SEED:

## A. SHAPE

- ☒ 1 = 1 = Ovate  
2 = Oval  
3 = Elliptical

## B. CHEEK

- ☒ 1 = 1 = Rounded  
2 = Angular

## C. BRUSH

- ☒ 3 = 1 = Short  
2 = Medium  
3 = Long
- ☒ 1 = 1 = Not Collared  
2 = Collared

## D. CREASE

- ☒ 2 = 1 = Width 60% or less of Kernel  
2 = Width 80% or less of Kernel  
3 = Width Nearly as Wide as Kernel
- ☒ 2 = 1 = Depth 20% or less of Kernel  
2 = Depth 35% or less of Kernel  
3 = Depth 50% or less of Kernel

## E. COLOR

- ☒ 1 = 1 = White  
2 = Amber  
3 = Red  
4 = Other (Specify) \_\_\_\_\_

## F. TEXTURE

- ☒ 2 = 1 = Hard  
2 = Soft  
3 = Other (Specify) \_\_\_\_\_

## G. PHENOL REACTION

- ☒ 3 = 1 = Ivory  
2 = Fawn  
3 = Light- Brown  
4 = Dark- Brown  
5 = Black

## H. SEED WEIGHT

- ☒ 47 = g/1000 Seed (whole number only)

## I. GERM SIZE

- ☒ 3 = 1 = Small  
2 = Mid-Size  
3 = Large

## 14. DISEASE: (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> 0 Stem Rust ( <i>Puccinia graminis</i> f. sp. <i>tritici</i> )         | <input checked="" type="checkbox"/> 2 Leaf Rust ( <i>Puccinia recondita</i> f. sp. <i>tritici</i> ) <b>Current PNW Races</b> |
| <input checked="" type="checkbox"/> 2 Stripe Rust ( <i>Puccinia striiformis</i> ) <b>Current PNW Races</b> | <input checked="" type="checkbox"/> 0 Loose Smut ( <i>Ustilago tritici</i> )   |
| <input checked="" type="checkbox"/> 0 Tan Spot ( <i>Pyrenophora tritici-repentis</i> )                     | <input checked="" type="checkbox"/> 0 Flag Smut ( <i>Urocystis agropyri</i> )  |
| <input checked="" type="checkbox"/> 0 Halo Spot ( <i>Selenophoma donacis</i> )                             | <input checked="" type="checkbox"/> 0 Common Bunt ( <i>Tilletia tritici</i> or <i>T. laevis</i> )                            |
| <input checked="" type="checkbox"/> 0 Septoria nodorum (Glume Blotch)                                      | <input checked="" type="checkbox"/> 0 Dwarf Bunt ( <i>Tilletia controversa</i> )   |
| <input checked="" type="checkbox"/> 0 Septoria avenae (Speckled Leaf Disease)                              | <input checked="" type="checkbox"/> 0 Karnal Bunt ( <i>Tilletia indica</i> )   |
| <input checked="" type="checkbox"/> 0 Septoria tritici (Speckled Leaf Blotch)                              | <input checked="" type="checkbox"/> 3 Powdery Mildew ( <i>Erysiphe graminis</i> f. sp. <i>tritici</i> )                      |
| <input checked="" type="checkbox"/> 0 Scab ( <i>Fusarium</i> spp.)   | <input checked="" type="checkbox"/> 0 "Snow Molds"   |
| <input checked="" type="checkbox"/> 0 "Black Point" (Kernel Smudge)  | <input checked="" type="checkbox"/> 0 Common Root Rot ( <i>Fusarium</i> , <i>Cochliobolus</i> and <i>Bipolaris</i> spp.)     |
| <input checked="" type="checkbox"/> 0 Barley Yellow Dwarf Virus (BYDV)                                     | <input checked="" type="checkbox"/> 0 Rhizoctonia Root Rot ( <i>Rhizoctonia solani</i> )                                     |
| <input checked="" type="checkbox"/> 0 Soilborne Mosaic Virus (SBMV)  | <input checked="" type="checkbox"/> 0 Black Chaff ( <i>Xanthomonas campestris</i> pv. <i>translucens</i> )                   |
| <input checked="" type="checkbox"/> 0 Wheat Yellow (Spindle Streak) Mosaic Virus                           | <input checked="" type="checkbox"/> 0 Bacterial Leaf Blight ( <i>Pseudomonas syringae</i> pv. <i>syringae</i> )              |
| <input checked="" type="checkbox"/> 0 Wheat Streak Mosaic Virus (WSMV)                                     | <input checked="" type="checkbox"/> 0 Other (Specify) _____  |
| <input checked="" type="checkbox"/> 0 Other (Specify) _____  | <input checked="" type="checkbox"/> 0 Other (Specify) _____  |
| <input checked="" type="checkbox"/> 0 Other (Specify) _____  | <input checked="" type="checkbox"/> 0 Other (Specify) _____  |
| <input checked="" type="checkbox"/> 0 Other (Specify) _____  | <input checked="" type="checkbox"/> 0 Other (Specify) _____  |

## 15. INSECT: (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> 0 Hessian Fly ( <i>Mayetiola destructor</i> )   | <input checked="" type="checkbox"/> 0 Other (Specify) _____ |
| <input checked="" type="checkbox"/> 0 Stem Sawfly ( <i>Cephus</i> spp.)             | <input checked="" type="checkbox"/> 0 Other (Specify) _____ |
| <input checked="" type="checkbox"/> 0 Cereal Leaf Beetle ( <i>Oulema melanopa</i> ) | <input checked="" type="checkbox"/> 0 Other (Specify) _____ |

15. INSECT: (continued)    0 = Not Tested    1 = Susceptible    2 = Resistant    3 = Intermediate    4 = Tolerant

PLEASE SPECIFY BIOTYPE (Where Needed)

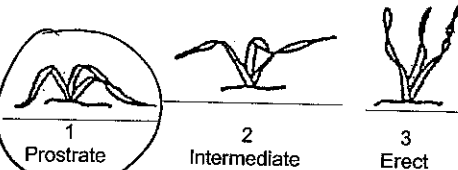
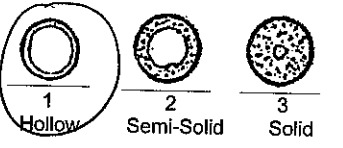
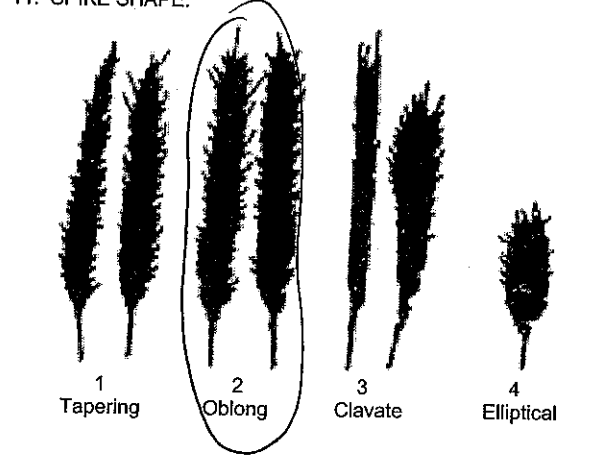
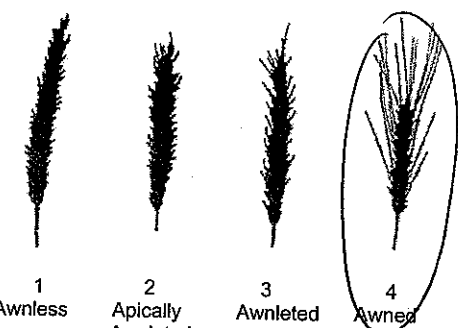
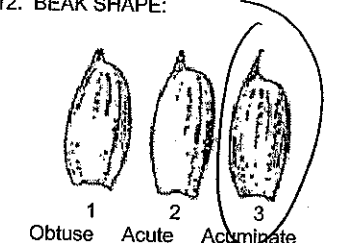
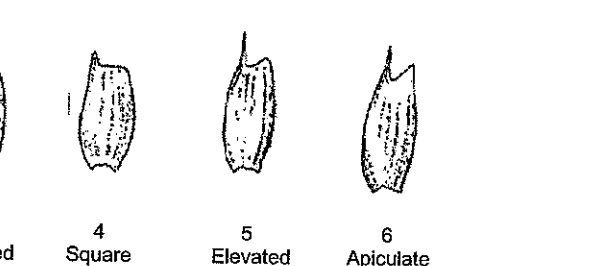
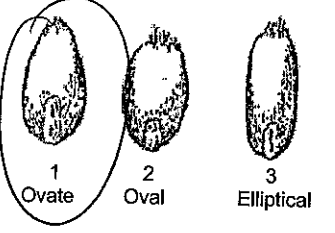
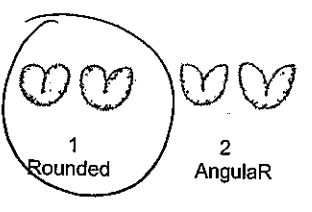
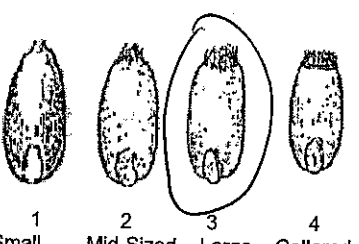
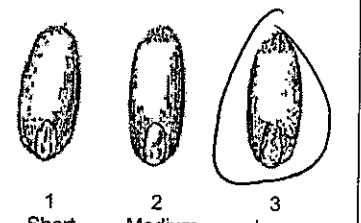
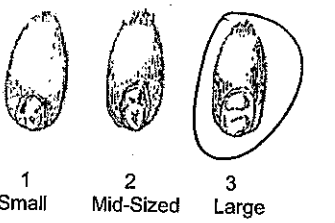
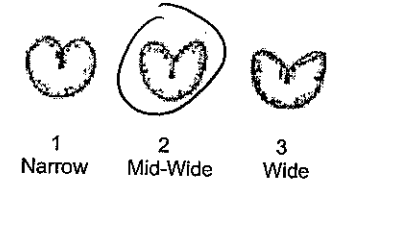
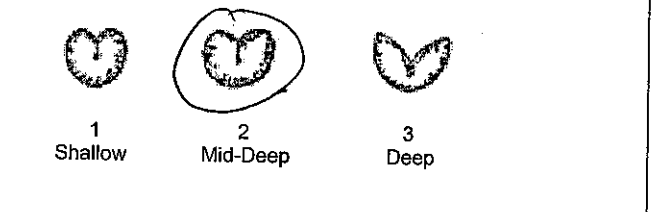
- ☐ Russian Aphid (*Diuraphis noxia*)  
☐ Greenbug (*Schizaphis graminum*)  
☐ Aphids

- ☐ Other (Specify) \_\_\_\_\_  
☐ Other (Specify) \_\_\_\_\_  
☐ Other (Specify) \_\_\_\_\_

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS:

## WHEAT DESCRIPTOR ILLUSTRATIONS

Section Numbers Correspond to the Numbers of the Sections on the Form

<p>4. EARLY PLANT GROWTH HABIT:</p>  <p>1 Prostrate      2 Intermediate      3 Erect</p>	<p>10. STEM INTERNODE X-SECTION:</p>  <p>1 Hollow      2 Semi-Solid      3 Solid</p>	<p>11. SPIKE SHAPE:</p>  <p>1 Tapering      2 Oblong      3 Clavate      4 Elliptical</p>	
<p>11. AWNEDNESS:</p>  <p>1 Awnless      2 Apically Awnleted      3 Awnleted      4 Awned</p>	<p>12. BEAK SHAPE:</p>  <p>1 Obtuse      2 Acute      3 Acuminate</p>	<p>12. SHOULDER SHAPE:</p>  <p>1 Wanting      2 Oblique      3 Rounded      4 Square      5 Elevated      6 Apiculate</p>	
<p>13. SEED SHAPE:</p>  <p>1 Ovate      2 Oval      3 Elliptical</p>	<p>13. CHEEK SHAPE:</p>  <p>1 Rounded      2 Angular</p>	<p>13. BRUSH SIZE:</p>  <p>1 Small      2 Mid-Sized      3 Large      4 Collared</p>	<p>13. BRUSH HAIR LENGTH:</p>  <p>1 Short      2 Medium      3 Long</p>
<p>13. GERM (EMBRYO) SIZE:</p>  <p>1 Small      2 Mid-Sized      3 Large</p>	<p>13. SEED CREASE WIDTH:</p>  <p>1 Narrow      2 Mid-Wide      3 Wide</p>	<p>13. SEED CREASE DEPTH:</p>  <p>1 Shallow      2 Mid-Deep      3 Deep</p>	

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FORM APPROVED - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE**EXHIBIT E  
STATEMENT OF THE BASIS OF OWNERSHIP**

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)

West Bred, LLC

2. TEMPORARY DESIGNATION  
OR EXPERIMENTAL NUMBER

BU 6w93-477

3. VARIETY NAME

Mohler

4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)

8111 Timberline Dr.  
Bozeman, MT 59718

5. TELEPHONE (Include area code)

406-587-1218

6. FAX (Include area code)

406-586-8247

7. PVPO NUMBER

20 04 00 304

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain.

☒ YES☐ NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country.

☒ YES☐ NO

10. Is the applicant the original owner?

☒ YES☐ NOIf no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES☐ NO

If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐ YES☐ NO

If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

**PLEASE NOTE:**

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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